We claim:

1. A method for host-device communication (103) in a first WUSB network (100) including a host (101) and at least one connected device (103), comprising the steps of:

beaconing (402) according to a distributed UWB MAC protocol by the host and the at least one connected device;

receiving by the host DNT traffic (403) (405); and

operating the WUSB network by the host according to the capabilities of the connected devices (406) (409) (410).

2. The method of claim 1, further comprising the step of, if distributed reservation is supported, setting an offset field and a duration field in a DRP reservation to a multiple of a predetermined value.

3. The method of claim 2, wherein the predetermined value is 625usec.

4. The method of claim 1, further comprising the at least one connected device (102) performing one of the steps of:

i. using DRP access to indicate traffic;

ii. using EDCA to send notification traffic; and

iii. signaling in the beacons to send notification traffic.

5. The method of claim 1, wherein said beaconing step further comprises the steps of:

including in a host beacon capabilities of the host (402); and

including in a connected device beacon capabilities of the at least one connected device.

6. The method of claim 1, further comprising the step of the at least one connected device (102) discovering the host (101) via the host beacon.

7. The method of claim 1, wherein the operating step further comprises the step of if the connected device supports EDCA, the host performing the steps of:

using an EDCA mechanism to access the medium (406);

polling the at least one connected device (102) to request that the at least one connected device (102) transmit data; and

receiving data from the at least one connected device (102) as a result of the poll.

8. The method of claim 7, further comprising the at least one connected device (102) performing one of the steps of:

using DRP access to indicate traffic;

using EDCA to send notification traffic; and

signaling in the beacons to send notification traffic.

9. The method of claim 1, wherein the operating step further comprises the step of if the connected device (102) supports Unicast DRP, performing a Unicast reservation by the host performing the steps of:

initiating a Unicast DRP reservation to the at least one device to reserve channel resources for transmission of data to the host by the at least one device (407);

polling the at least one connected device during DRP to request that the at least one connected device transmit data (409); and

receiving data from the at least one connected device at a result of the poll.

10. The method of claim 9, further comprising the at least one connected device (102) performing one of the steps of:

using DRP access to indicate traffic;

using EDCA to send notification traffic; and

signaling in the beacons to send notification traffic.

11. The method of claim 1, wherein the operating step further comprises the step of if the connected device (102) supports Multicast DRP, performing a Multicast reservation by the host (101) performing the steps of:

reserving channel resources in a first DRP reservation by inclusion of multicast DRP in beacons to achieve a first reservation (408);

for each connected device that is a non-accepting device that does not accept the Multicast DRP reservation, initiating regular DRP negotiation with each non-accepting device to achieve at least one of a Unicast reservation for each non-accepting and a second DRP reservation (411);

micro-scheduling the channel resources of the first and second DRP reservation among those connected devices of the at least one connected device that accept the multicast DRP reservation (410); and

receiving data from the at least one connected device.

12. The method of claim 11, further comprising the at least one connected device (102) performing one of the steps of:

using DRP access to indicate traffic;

using EDCA to send notification traffic; and

signaling in the beacons to send notification traffic.

13. The method of claim 12, wherein the initiating regular DRP negotiation step further (411) comprises the step of performing at least one of the steps of initiating a Unicast DRP reservation with a non-accepting device and initiating a second Multicast DRP reservation with non-accepting devices.

14. The method of claim 13, further comprising the step of the at least one connected device (102) acting as a host (101) in second WUSB network.

15. The method of claim 14, wherein the at least one connected device (102) acting as a host (101) of the second WUSB network performs at least some of the steps performed by the host (101) of the first WUSB network.

16. The method of claim 15, further comprising the step of if distributed reservation is supported setting an offset field and a duration field in a DRP reservation to a multiple of a predetermined value.

17. The method of claim 16, wherein the predetermined value is 625usec.

18. The method of claim 13, further comprising the step of if distributed reservation is supported setting an offset field and a duration field in a DRP reservation to a multiple of a predetermined value.

19. The method of claim 18, wherein the predetermined value is 625usec.

20. A host apparatus (300) for host-device communication in a first WUSB network including the host (101) and at least one connected device (102), comprising:

a transmitter (301) for sending beacons, traffic notifications, medium reservations and data;

a receiver (304) for receiving beacons, traffic notifications, medium reservations and data;

a host data transfer processing component (303a) that processes data transferred between the host (101) and the at least one connected device (102); and

a controller (302) operably coupled to the transmitter (301), receiver (304) and host data transfer processing component (303) and configured to direct the transmitter (301), receiver (304) and host data transfer processing component (303) to -

- start beaconing according to a distributed UWB MAC protocol and announce host capabilities (402),
- receive and process according to a distributed UWB MAC protocol, beacons of the at least one connected device (102) including capabilities of the at least one device,
- receive and process DNT traffic (405), and
- start and control WUSB operation of the network (406) (409) (410).

21. The host apparatus of claim 20, wherein the controller (302) is further configured to direct the transmitter (301), receiver (304) and host data transfer proce ssing component (303) to:

include multicast DRP in beacons and then start micro-scheduling operation if multicast DRP is supported (410);

receive and process DNT traffic (405) and if only unicast DRP is supported by the connected device negotiate unicast DRP (407) with the at least one connected device (102) and then start WUSB operation (409); and

receive and process DNT traffic (403) and if only EDCA is supported by the connected device start WUSB operation with poll frame using EDCA (406).

22. The host apparatus of claim 20, wherein the controller (302) is further configured to direct the device data transfer processing component (353) to set an offset field and a duration field in each DRP reservation to a multiple of a predetermined value if distributed reservation is supported.

23. The host apparatus of claim 22, wherein the predetermined value is 625usec.

24. The host apparatus of claim 20, wherein when the connected device (102) only supports EDCA, the controller (302) is further configured to control the operation of the host by directing the receiver (304), transmitter (302) and host data transfer processing unit (303) to:

- use an EDCA mechanism to access the medium (406);
- poll the at least one connected device (102) to request that the at least one connected device transmit data (406); and
- receive data from the at least one connected device as a result of the poll.

25. The host apparatus of claim 20, wherein the connected device (102) supports Unicast DRP the controller (302) is further configured to control the operation of the host (101) by directing the receiver (304), transmitter (302) and host data transfer processing unit (303) to:

- initiate a Unicast DRP reservation (407) to the at least one device to reserve channel resources for transmission of data to the host (101) by the at least one connected device (102);
- poll the at least one connected device (120) during DRP to request that the at least one connected device (102) transmit data (409); and
- receive data from the at least one connected device (102) at a result of the poll.

26. The host apparatus of claim 20, wherein the at least one connected device (102) supports multicast DRP and the controller (302) is further configured to control the operation of the host (101) by directing the receiver (304), transmitter (302) and host data transfer processing unit (303) to:

- reserve channel resources in a first Multicast DRP reservation by inclusion of multicast DRP in beacons to achieve a first reservation (408);
- for each said at least one connected device (102) that is a non-accepting device that does not accept the first Multicast DRP reservation, initiate regular DRP negotiation with each non-accepting device to achieve at least one of a Unicast reservation for each non-accepting and a second DRP reservation (411);
- micro-schedule the channel resources of the first and second DRP reservation among those connected devices of the at least one connected device that accept the multicast DRP reservation (410); and
- receive data from the at least one connected device.

27. The host apparatus of claim 26, wherein regular DRP negotiation comprises at least one of negotiation of a Unicast DRP reservation with a non-accepting device and a second Multicast DRP reservation for non-accepting devices.

28. A method for host-device communication in a WUSB network including a host and at least one connected device, comprising the steps of:

beaconing according to a distributed UWB MAC protocol by the host and the at least one connected device;

the host establishing a multicast reservation between the host and the at least one connected device; and

running a WUSB protocol inside the multicast reservation.

29. The method of claim 28, wherein the establishing and running steps each further comprise the steps of

reserving channel resources by inclusion of a multicast reservation information element in beacons to achieve a first reservation;

micro-scheduling the channel resources of the multicast reservation among those connected devices of the at least one connected device that accepted the multicast reservation; and

receiving data from the at least one connected device.

30. The method of claim 29, wherein the reserving step further comprises the steps of:

initiating a unicast reservation with a non-accepting device; and

initiating a second multicast reservation with a plurality of non-accepting devices.

31. The method of claim 28, further comprising the step of setting an offset field and a duration field in a reservation to a multiple of a predetermined value.

32. The method of claim 30, wherein the predetermined value is 625usec.

33. The method of claim 28, further comprising the at least one connected device performing one of the steps of:

using DRP access to indicate traffic;

using EDCA to send notification traffic; and

signaling in the beacons to send notification traffic.

34. The method of claim 33, wherein said beaconing step further comprises the step of including in a host beacon capabilities of the host and in a connected device beacon capabilities of the at least one connected device.

35. The method of claim 33, further comprising the step of the at least one connected device discovering the host via a host beacon.

36. A method for host-device communication in a WUSB network including a host and at least one connected device, comprising the steps of:

beaconing according to a distributed UWB MAC protocol by the host and the at least one connected device;

establishing unicast reservations between the host and the at least one connected device; and

running a WUSB protocol inside the unicast reservations.

37. The method of claim 36, wherein the establishing and running steps each further comprise the steps of

the host initiating a unicast reservation to the at least one connected device to reserve channel resources for transmission of data to the host by the at least one connected device;

the host polling the at least one connected device during the reservation to request that the connected devices transmit data; and

the at least one connected device transmitting data to the host as a result of the poll.

38. The method of claim 36, further comprising the at least one connected device performing one of the steps of:

using DRP access to indicate traffic;

using EDCA to send notification traffic; and

signaling in the beacons to send notification traffic.

39. The method of claim 38, wherein said beaconing step further comprises the step of including in a host beacon capabilities of the host and in a connected device beacon capabilities of the at least one connected device.

40. The method of claim 38, further comprising the step of the at least one connected device discovering the host via a host beacon.

41. A method for host-device communication in a WUSB network including a host and at least one connected device, comprising the steps of:

the host using an EDCA mechanism to access the medium;

the host polling the at least one connected device to request that the at least one connected device transmit data; and

the host receiving data from the at least one connected device as a result of the poll.

42. The method of claim 41, wherein the host and the at least one connected device perform the step of beaconing in accordance with a distributed UWB MAC protocol.

43. The method of claim 41, further comprising the step of the at least one connected device performing one of the steps of:

using DRP access to indicate traffic;

using EDCA to send notification traffic; and

signaling in the beacons to send notification traffic.

44. The method of claim 43, wherein said beaconing step further comprises the step of including in a host beacon capabilities of the host and in a connected device beacon capabilities of the at least one connected device.

45. The method of claim 43, further comprising the step of the at least one connected device discovering the host via a host beacon.